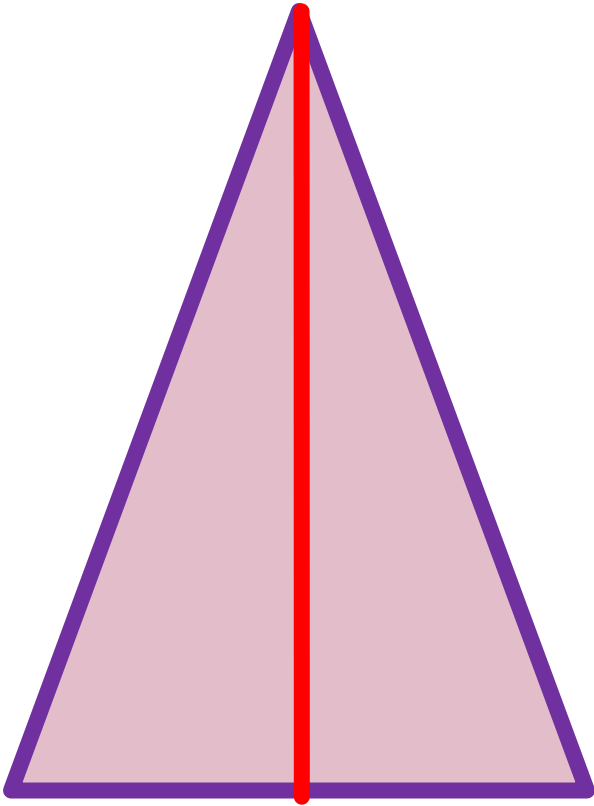# CHAPTER 4 REVIEW

(DAY 1)

Conjectures with the vertex angle bisector
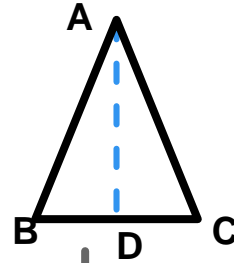
If a segment bisects the vertex angle, what relationship do you think it has with the base?

_____

_____

_____

_____

Proof of Vertex Angle Bisector Theorem (Part 1)

Given: $\overline{AB} \cong \overline{AC}$

$\overline{AD}$ bisects $\angle A$

Prove: $\overline{BD} \cong \overline{CD}$ & $\overline{BC} \perp \overline{AD}$

Statements	Reasons
$\overline{AB} \cong \overline{AC}$	
$\overline{AD}$ bisects $\angle A$	
$\angle BAD \cong \angle CAD$	
$\overline{AD} \cong \overline{AD}$	
$\triangle BAD \cong \triangle CAD$	
$\overline{BD} \cong \overline{CD}$	
$\angle BDA \cong \angle CDA$	
$m\angle BDA \cong m\angle CDA$	
$m\angle BDA + m\angle CDA = 180$	
$m\angle BDA + m\angle BDA = 180$	
$2m\angle BDA = 180$	
$m\angle BDA = 90$	
$\overline{BC} \perp \overline{AD}$	

Vertex Angle Bisector Theorem

If a segment _____ the vertex angle of an isosceles triangle, then the segment is also the _____ _____ (the altitude and the median) of the base.

What do you need to know?

Conjectures and Proofs

Triangle Sum Theorem

The sum of the measures of the angles in every triangle is 180°

Third Angle Theorem

If two angles of one triangle are equal in measure to two angles of another triangle, then the third angle in each triangle is equal in measure to the third angle in the other triangle.

Triangle Exterior Angle Theorem

The measure of an exterior angle of a triangle is equal to the sum of the measures of the remote interior angles.

Triangle Congruency Conjectures

SSS

SAS

ASA

AAS

HL

Base Angles Theorem

If a triangle is isosceles, then its base angles are congruent.

Converse of the Base Ang. Th.

If a triangle has two congruent angles, then it is an isosceles triangle.

Vertex Angle Bisector Theorem

In an isosceles triangle, the bisector of the vertex angle is also the altitude and the median to the base.